IN THE SPECIFICATION:

Please Amend paragraph 0038 of the Specification as follows:

[0038] As suggested above, additional data used in the analysis of the present invention include operational parameter data 25 (FIG. 1) indicative of a plurality of operational parameters or operational conditions of the machine. The operational parameter data may be obtained from various sensor readings or observations, e.g., temperature sensor readings, pressure sensor readings, electrical sensor readings, engine power readings, etc. Examples of operational conditions of the machine may include whether the locomotive is operating in a motoring or in a dynamic braking mode of operation, whether any given subsystem in the locomotive is undergoing a self-test, whether the locomotive is stationary, whether the engine is operating under maximum load conditions, etc. It will be appreciated by those skilled in the art that the repair data storage unit, the fault log data storage unit, and the operational parameter data storage unit may respectively contain repair data, fault log data and operational parameter data for a plurality of different locomotives. It will be further appreciated that the operational parameter data may be made up of snapshot observations, i.e., substantially instantaneous readings or discrete samples of the respective values of the operational parameters from the locomotive. Preferably, the snapshot observations are temporally aligned relative to the time when respective faults are generated or logged in the locomotive. For example, the temporal alignment allows for determining the respective values of the operational parameters from the locomotive prior, during or after the logging of respective faults in the locomotive. The operational parameter data need not be limited to snapshot observations since substantially continuous observations over a predetermined period of time before or after a fault is logged can be similarly obtained. This feature may be particularly desirable if the system is configured for detection of trends that may be indicative of incipient failures in the locomotive.

Please Amend paragraph 0039 of the Specification as follows:

[0039] FIG. 4 shows an exemplary data file 50 that combines fault log data and operational parameter data 52, such as locomotive speed, engine water temperature, engine oil temperature, call status, etc. FIG. 4 further illustrates an exemplary data file <u>60</u> including fault log data with quantized operational parameter data 62 that may be conveniently used to enhance the predictive accuracy of the algorithms of the present invention, as described in greater detail below. As used herein "quantized operational parameter data" refers to operational parameter data having a respective identifier that uniquely associates or maps a respective quantization level to a respective operational parameter based on the data buckets for that operational parameter.

Please amend paragraph 0040 of the Specification as follows:

[0040] FIG. 5 illustrates an exemplary data bucket 80 for one exemplary operational parameter, e.g., engine speed. For example, prior to the present invention, conceptually the value of engine speed may fall anywhere in a range from zero rpm to a maximum rated engine speed. In accordance with aspects of the present invention, exemplary data bucket 80, allows for reducing the number of values that may be assumed by engine speed based on statically and/or empirically determined ranges for engine speed. For example, data bucket 80 may be made up of eleven distinct ranges for engine speed, respectively identified in FIG. 5 with the letters A through K. Thus, engine speed of zero rpm would be assigned to range A. Engine speed above zero rpm and less than 323 rpm would be assigned to range B. Engine speed equal or above 323 rpm and equal or less than 387 rpm would be assigned to range C. The inventors of the present invention have innovatively recognized that mapping the value of the operational parameters based on the data bucket of the operational parameter allows reducing the universe of possible states that otherwise could be attributed to each operational parameter. As further illustrated in FIG. 5, the data bucket for engine speed may be based on a histogram <u>82</u> that relates distinct faults to engine speed. For example, the histogram may reveal that a first type of fault is

statistically more prevalent in speed range D than in any other speed range, or that a second type of fault is statistically more prevalent in speed ranges I through K than in any of the other speed ranges.

Please amend paragraph 0041 of the Specification as follows:

[0041] Returning to FIG. 4, an exemplary data file 70 may be used for triggering candidate anomalies 27 (FIG. 1) and generate data predictive of malfunctions of the machine. For example, fault code "7096" may be indicative of a respective fault for a fuel pump, code "1020" may represent quantized ambient temperature in a predefined range. Assuming the combination of fault code "7096" and quantized ambient temperature under code "1020" is statistically demonstrated to be predictive of a certain machine malfunction, then when new fault log data is downloaded for the machine, if one encounters that particular combination, then one would be able to predict that particular machine malfunction. Similarly, assuming fault code "7097" is indicative of an inverter fault and code "1060" represents a quantized level of current flowing through a leg of the inverter within a predefined range. In this example, the combination of fault code "7096" and quantized leg current under code "1060" may be statistically demonstrated to be predictive of another machine malfunction, then when new fault log data 200 (FIG. 1) is downloaded from the machine, if one detects that particular combination, then one would be able to predict that particular machine malfunction.

Please amend paragraph 0043 of the Specification as follows:

[0043] FIG. 6 illustrates an exemplary embodiment wherein a candidate anomaly processor module 206, which may be part of processor 12, receives fault log data ~~100~~200 and operational parameter data ~~52~~25 that may be quantized through a data bucket 204 and mapped as discussed in the context of FIGS. 4 and 5.

Please amend paragraph 0044 of the Specification as follows:

[0044] FIG. 7 illustrates a flow chart 76 illustrating exemplary processing steps that may be performed by processor module 206. For example, step 208 allows for combining candidate anomalies triggered by the fault log data with candidate anomalies triggered with quantized operational parameter data to generate data predictive of malfunctions of the machine. Prior to return step 212, step 210 allows for selecting at least one repair for each predicted malfunction using a plurality of weighted repairs and, as suggested above, respective combinations of distinct clusters of faults and/or quantized operational parameters.